

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO.
WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF COLFAX
COLFAX LANDFILL
CLASS III LANDFILL
CLOSURE, POST-CLOSURE MAINTENANCE
AND CORRECTIVE ACTION
PLACER COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. The City of Colfax (hereafter referred to as “Discharger”) owns and operates the 3-acre Colfax Landfill, a closed Class III landfill on Iowa Hill Road approximately one mile southeast of the City of Colfax, as shown in Attachment "A", which is incorporated herein and made part of this Order by reference. The landfill is on a 16.5-acre site in the NE-1/4 of the SW-1/4 of Section 2, T14N, R9E, MDB&M, corresponding to Assessor Parcel Number 017-110-004.
2. The facility includes the landfill, access roads, monitoring wells, and drainage facilities as shown in Attachment "B", incorporated herein and made part of this Order by reference. The landfill is unlined and does not have a leachate collection and recovery system.
3. The landfill operated from the early 1960s to mid-1988 accepting primarily household waste from the City of Colfax and the surrounding areas. The site previously operated as a burn dump from at least the early 1950s until landfill startup in the early 1960s. Most of the landfill, including the crest (0.81 acres) and upper slopes (1.74 acres), was closed (i.e. graded and capped) in 2000 and 2001. The remaining portion (i.e. ½ acre landfill toe area) is scheduled for closure in 2005. Since 1988, refuse from the area has been disposed of at the Eastern Regional Landfill near Truckee.
4. Previous Waste Discharge Requirements (WDRs) Order No. 98-186, issued prior to implementation of landfill closure, no longer adequately describes the facility.
5. The facility is not subject to federal municipal solid waste landfill regulations (Title 40, Code of Federal Regulations, Part 258, or “Subtitle D”) because it ceased accepting wastes before the effective date of those regulations, 9 October 1991.

WASTES AND UNIT CLASSIFICATION

6. The landfill accepted solid wastes defined as “inert” and “nonhazardous” under Sections 20230 and 20220 of Title 27, respectively. The landfill was not authorized to accept hazardous or liquid wastes. The typical waste stream consisted of about 75 percent household waste, 20 percent commercial waste, and 5 percent demolition wastes. It is estimated that less

than 100,000 cubic yards of waste was disposed of in the landfill. Refuse disposal was by the trench-and-cover method.

7. The landfill is an existing, reclassified Class III waste management unit under Section 20080(d) of Title 27, since it operated prior to 27 November 1984 (i.e. the effective date of former Chapter 15 regulations).

SITE DESCRIPTION

8. The site is on an east-facing slope of Slaughter Ravine in the foothills of the Sierra Nevada Mountains. The landfill was sited in a natural drain on the ravine slope. The surrounding terrain is generally steep and heavily forested. Surface elevations at the site range from about 2,300 feet above mean sea level (MSL) along the western site perimeter (i.e. on top of a hill overlooking the landfill) to about 1,900 feet above MSL along Iowa Hill Road east of the landfill. The average site elevation is about 2,160 feet.
9. Land uses within 1000 feet of the facility include private residences (to the north, south and west), roads, and undeveloped forestland.
10. It is estimated that there are about 20 private domestic wells within a ½ mile radius of the landfill to the north, east and south. Most of these residences are larger tract developments outside of the City limits. No domestic wells are known to exist within ½ mile west of the landfill, where residences are within the City limits and served by the Placer County Water Agency.
11. The landfill is not within a 100-year floodplain.

SURFACE AND STORM WATER

12. Surface drainage in the site area is to an unnamed creek in Slaughter Ravine, tributary to the North Fork of the American River. The creek runs along Iowa Hill Road about 250 feet east of the landfill toe on the down gradient perimeter of the site.
13. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. The beneficial uses of the North Fork of the American River are municipal and domestic supply; agricultural supply (irrigation only); water contact and non-contact water recreation; cold freshwater habitat, warm freshwater habitat (potential use); spawning, reproduction and/or early development; and wildlife habitat.
14. The 100-year, 24-hour precipitation event is 7.3 inches as determined from Rainfall Depth Duration Frequency data provided by the State Department of Water Resources for the Colfax Station. The data indicates that the 2-year, 24-hour precipitation event at the station is about 3.3 inches.

GEOLOGY

15. The geology in the Colfax area generally consists of late Jurassic metasedimentary and metavolcanic rocks of the Mariposa formation. The geologic strata underlying the site consist primarily of fractured slate interbedded with sandstone (greywacke), conglomerate and some volcanic rocks. The rock strata generally strike north-south and dip steeply to the east, while the rock fractures generally strike east-west and dip steeply to the north and south. Drilling results indicate that the rock is most fractured in the area of the natural drain which was filled in by the landfill. Surface soils at the site area range from about two inches to two feet in thickness.
16. The closest active fault is the Quaternary Age Honcutt (Palermo) Fault about 34 miles northwest of the site. This fault has been characterized as producing a maximum probable earthquake of 5.4 on the Richter scale and a peak bedrock acceleration of less than 0.05 g. The inactive Melones Fault is about eight miles east of the site. There are no known Holocene faults within 1,000 feet of the facility.

GROUNDWATER

17. The beneficial uses of the ground water are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply as designated in *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*.
18. The depth to groundwater at the site ranges from about 80 feet on the western site perimeter (along a hill overlooking the landfill) to about 8 feet near the landfill toe. Seasonal average groundwater elevations at the site range from about 2,210 feet MSL on the upgradient perimeter to about 1,935 feet MSL along the down gradient perimeter.
19. The groundwater gradient is relatively steep, averaging about 0.31 ft/ft to the east-southeast. A significant component of groundwater flow at the site is believed to be through the fractures in the underlying bedrock, which (in addition to the site topography and stratigraphy) influence the magnitude and direction of the gradient.
20. The minimum separation between the base of the landfill and seasonal high groundwater is unknown but estimated to be about 5 feet based on groundwater seepage from fractured bedrock beyond the landfill toe (i.e. the area of the natural drain). Leachate seeps have been historically recorded along the landfill slopes above this area, but none have been observed since the top-deck closure cap was installed.
21. There are four groundwater monitoring wells at the site, including one upgradient well (MW-1) and three down gradient wells (MWs-2, 3 and 4). Only the upgradient well, MW-1, shows appreciable seasonal variation (+/- 10 feet).
22. Groundwater monitoring data for the site since 1995 is non-detect for volatile organic compounds (VOCs) but shows slightly-elevated concentrations of chloride and sulfate in down gradient wells, as follows:

Constituent	Upgradient MW-1	Typical Concentration, mg/L			
		Downgradient MW-2		MW-3	
		<u>1995</u>	<u>2004</u>	<u>1995</u>	<u>2004</u>
Chloride	2	4	7	12	16
Sulfate	8	20	20	50	40
TDS	160 - 200	160	200	160	200
Bicarbonate	160 - 200	150	--- ¹	120	--- ¹

1. Bicarbonate not monitored after 1996.

Trend analysis for the past four years shows a slight rising trend for chloride and sulfate relative to background. The higher concentrations detected in down gradient well MW-3 compared to MW-2 are consistent with historical seep information that indicates that leachate flows through fractures concentrated in the area of the natural drain underlying the landfill. Both upgradient well MW-1 and down gradient wells MW-2 and 3 have historically had similar concentrations of total dissolved solids (TDS), however historical monitoring data (pre-1997) indicates that bicarbonate, a possible impact of landfill gas, which can migrate upgradient, is the major component of TDS at the site. Notwithstanding this evidence of a release, overall groundwater quality at the site is good, with TDS historically detected at less than 250 mg/L in all wells.

23. Monitoring and Reporting Program Order No. _____ requires that the Discharger perform corrective action monitoring to monitor the release and the progress of corrective action.

LANDFILL CLOSURE

24. Reports on file indicated that approximately 10 to 15 feet of interim cover soil was placed on the upper landfill slopes and top deck after the landfill stopped accepting waste in 1988.

Final Closure Plan

25. Previous WDRs required landfill closure to comply with Title 27 regulations and as a corrective action to address the groundwater impacts and leachate seeps. In 1999, the Discharger initiated closure of the landfill in accordance with a July 1996 Final Closure Plan (*Final Closure and Post Closure Maintenance Plans For City of Colfax Landfill*, prepared by Lawrence & Associates), as amended in 1998, which proposed closure in phases as follows:

<u>Phase</u>	<u>Construction Activity</u>	<u>Year</u>
1.	Construction of a 2-foot foundation layer on the top deck and side slopes.	1999
2.	Installation of asphalt cover on top deck and access road.	2001
3.	Removal of surface waste and implementation of erosion controls along toe slopes.	2003

26. The closure design was proposed as an engineered alternative to the prescriptive standards of Title 27 for final cover. The FCP demonstrated per Section 20080(b) that the design met the performance standards for final cover in Title 27 (e.g. minimize infiltration and leachate

generation) and that the prescriptive design was not feasible based on relevant factors (i.e., cost, difficulty of constructing a clay cover on steep slopes, impracticability of disturbing mature vegetation and trees).

27. Phase 1 of the closure plan included foundation layer construction by excavation, grading, and re-compaction (i.e., to a minimum of 90 percent of maximum dry density at or near optimum moisture content) of the upper two-feet of the interim cover soil.
28. Phase 2 included construction of a low permeability barrier layer ($k < 1 \times 10^{-9}$ cm/sec) on the top deck. The design included the following elements, from top to bottom:
 - 1 ½ inches asphalt concrete
 - fluid asphalt-impregnated geotextile layer
 - 1 ½ inches asphalt concrete
 - 4 inches crushed rock
 - 2 feet of foundation soil

Landfill gas collection piping was also installed under the asphalt cover with plumbing for connection vertical vent pipes along its western edge.

29. The following two additional phases, originally proposed as contingency closure measures, have since been characterized as corrective action measures to address a known or reasonably foreseeable release under Section 22222 of Title 27:
 - a. Installation of leachate collection and control system (Phase 4)
 - b. Installation of a clay barrier layer on the side slopes (Phase 5)

The plan for Phase 4 included construction of a leachate collection trench with a 4-inch perforated pipe along the toe slopes of the landfill. The system would be plumbed to aboveground storage tanks which would be periodically pumped for leachate disposal. Phase 5 included installation of a Title 27 prescriptive cover on the landfill side slopes, including foundation layer (already installed on upper slopes), one-foot low permeability clay layer ($k < 1 \times 10^{-6}$ cm/sec) and vegetative cover layer. The FCP estimated that about 4,800 cubic yards (cy) of clay and 1,300 cy of topsoil would be needed for this purpose.

Other corrective measures, in addition to, or in lieu of either or both of the above measures, may be proposed in the updated FCP required under Provision G.8 of these WDRs.

30. The FCP, including the non-prescriptive cover design, was approved and incorporated into previous WDRs in 1998.

31. The Discharger completed installation of foundation soil on the deck and upper slopes (closure Phase 1) in 2000 and installation of asphalt concrete cover on the landfill top deck (closure Phase 2) in 2001. The Discharger has not yet initiated remaining closure Phase 3 and is out of compliance with the current FCP schedule. These WDRs require that the Discharger implement Phase 3 closure forthwith per an updated FCP (see Closure Specification C.1, Provision G.8) and require implementation of corrective action measures, as necessary, to address a known or reasonably foreseeable release (see Closure Specification C.9).

Slopes

32. In accordance with Title 27, the top deck was graded to a minimum 3 percent slope and the upper slopes were graded to a maximum slope of 3H:1V, which occurs along the rim of the top deck. The toe slopes exceed (i.e. are steeper than) 3H:1V but slope stability analysis provided in the FCP shows an acceptable minimum dynamic safety factor for this area of 1.64.

Drainage

33. The top deck cover includes a central, concrete-lined "V" ditch that collects direct precipitation on the deck and run-on from the adjacent hill. The northern portion of the ditch discharges offsite via an outfall at the northwest edge of the site, while the southern half directs flow to an overside drain at the southern edge of the top deck. The overside drain routes runoff to an unlined ditch along the southwest perimeter of the unit. This unlined ditch discharges to an outfall down the southern end of the toe slopes (see Attachment B).
34. Two cover drains capture sheet flow runoff from the upper slopes. One runs diagonally (from southwest to northeast) across the upper slopes and the other runs along the down slope (i.e. eastern) perimeter of the upper slopes. The diagonal ditch is intended to capture higher velocity runoff from the steeper slopes above it and feeds into the lower ditch at the northeastern end of the unit. The northern portion of the lower ditch drains to the northeast perimeter of the unit where it discharges offsite via an outfall. The southern half of the ditch drains to the south where it joins flows from the southwestern perimeter ditch and then spills down the southern toe slope.
35. The drainage facilities were designed to have sufficient capacity to accommodate a 24-hour, 100-year storm event.

Landfill Gas

36. Landfill gas (LFG) is monitored in a dual completion well along the western site boundary. The well includes one shallow (10 foot) probe and one deep (90 foot) probe. Low methane concentrations (i.e., 145 ppmv) have been historically detected in both probes. Higher methane concentrations, including several detections above the lower explosive limit (LEL, 5 percent by volume), have been detected in bar hole punch samples taken along the western perimeter of the asphalt cover.

COST ESTIMATES AND FINANCIAL ASSURANCES

37. Approximately \$353,900 in 2004 dollars was spent on Phases 1 and 2. The estimated cost of Phase 3 is \$59,000. The annual post-closure maintenance cost was estimated to be \$62,485.

Provision G.8 of these WDRs requires that the Discharger submit an addendum to the FCP/post-closure maintenance plan with updated cost estimates for completing closure and post-closure maintenance and monitoring.

38. The Discharger is required to demonstrate financial assurances for closure and post-closure maintenance to the California Integrated Waste Management Board (CIWMB) pursuant to Sections 22205(b) and 22210(b) of Title 27, since the landfill was operated after January 1, 1988. The CIWMB has approved an enterprise fund funded by a surcharge on refuse disposal fees for the remaining closure and post-closure maintenance costs for the landfill. There is currently \$330,000 in this fund.
39. The cost estimates for corrective action, based on Phases 4 and 5 of the 1998 Final Closure Plan, are approximately \$149,000 and \$238,000, respectively, in 2004 dollars. Provision G.8 of these WDRs requires that the Discharger submit an addendum to the FCP/post-closure maintenance plan with updated cost estimates for implementing any necessary corrective action for a known or reasonably foreseeable release.
40. The Discharger is not required to demonstrate financial assurances for corrective action to the California Integrated Waste Management Board pursuant to Section 22220(b) (since the landfill ceased operations prior to July 1, 1991), but is required to provide financial assurances for corrective action to the Regional Board in accordance with Section 22222 of Title 27. The Discharger did not provide these financial assurances as required under previous WDRs. These WDRs include a provision (G.6) requiring that such assurances be provided by 31 March 2006, as approved by the Regional Board in coordination with the CIWMB.

CEQA AND OTHER CONSIDERATIONS

41. The action to revise the WDRs for existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA, Public Resources Code Section 21000, et seq.), in accordance with Title 14, CCR Section 15301.
42. The City of Colfax adopted a final mitigated negative declaration for the landfill closure project in accordance with CEQA requirements on 11 August 1998. Potential significant impacts identified with the project included increased erosion during construction, altered drainage patterns, and increased runoff and runoff velocities after closure. The FCP includes drainage system design modifications and erosion control measures to mitigate these potential impacts.
43. Section 13267(b) of California Water Code provides that: "In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of discharging, or who proposed to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable

relationship to the need for the reports and the benefits to be obtained from the reports.” The monitoring and reporting program required by this Order (Monitoring and Reporting Program No. _____, attached) is necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

44. This order implements:

- a. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*; and
- b. Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions.

PROCEDURAL REQUIREMENTS

45. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
46. The Regional Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
47. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.
48. Any person affected by this action of the Regional Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812, within 30 days of the date of issuance of this Order. Copies of the laws and regulations applicable to the filing of a petition are available on the Internet at http://www.waterboards.ca.gov/water_laws/index.html and will be provided on request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 98-186 is rescinded, and that the City of Colfax, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of new or additional waste to the landfill at this facility is prohibited.
2. The discharge of wastes to groundwater, including (but not necessarily limited to) the following, is prohibited:
 - a. Solid or liquid waste
 - b. Treated or untreated wastewater

c. Leachate

3. The landfill shall not cause pollution or a nuisance, as defined by the California Water Code, Section 13050, and shall not cause degradation of any water supply.
4. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the Unit if such waste constituents could migrate to waters of the State — in either the liquid or the gaseous phase — and cause a condition of nuisance, degradation, contamination, or pollution.

B. DISCHARGE SPECIFICATIONS

1. The discharge shall remain within the designated disposal area at all times.
2. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.
3. Storm water runoff from the facility shall be monitored in accordance with Monitoring and Reporting Program No. ____ and, during periods of construction, the General Storm Water Permit for Construction Activities, as applicable.
4. A minimum separation of five feet shall be maintained between wastes or leachate and the highest anticipated elevation of underlying groundwater per Section 20240(c) of Title 27.

C. CLOSURE AND POST-CLOSURE SPECIFICATIONS

1. The Discharger shall implement Phase 3 landfill closure forthwith pursuant to the updated Final Closure Plan required under Provision G.8 herein, as approved by Board staff.
2. All final cover slopes shall be capable of withstanding a maximum probable earthquake.
3. The final cover shall be designed, graded, and maintained to promote lateral runoff and to prevent, to the greatest extent possible, soil erosion, ponding, infiltration, inundation, slope failure, and washout.
4. The erosion-resistant layer shall be maintained with native or other vegetation capable of providing effective erosion resistance. The vegetation shall not have a rooting depth greater than the erosion-resistant layer thickness.
5. Precipitation and drainage control systems shall be designed, constructed, operated and maintained to convey peak flows from a 100-year, 24-hour storm event.

6. The Discharger shall conduct an aerial site survey of the site for the purpose of updating the topographic map for the site at least every five years. The next aerial site survey shall be conducted by **30 June 2006**.
7. Annually, prior to the anticipated rainy season but no later than **31 October**, any necessary erosion control measures shall be implemented and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent storm water flows from:
 - a. Contacting or percolating through wastes,
 - b. Causing erosion or inundation of the landfill cover or other areas of the site, or
 - c. Causing sedimentation and clogging of the storm drains.
8. The post-closure maintenance period shall continue until the Regional Board finds that remaining waste in the landfill will not threaten water quality. Such finding by the Regional Board shall release the discharger only from the need to comply with the SWRCB-promulgated portions of Title 27 and not necessarily from the requirements of other state agencies (including the agents of such agencies) such as the CIMWB and Local Enforcement Agency.
9. The Discharger shall implement necessary corrective action measures in the event that the landfill closure fails to:
 - a. Meet or maintain performance standards under Title 27 (e.g. minimize infiltration and leachate generation) and/or
 - b. Is not otherwise effective as a corrective action and the deficiencies cannot be rectified with repairs.

Measures proposed to address a known or reasonably foreseeable release shall be considered part of the corrective action program for the landfill and implemented as necessary to address such a known or reasonably foreseeable release.

D. FACILITY SPECIFICATIONS

1. The Discharger shall immediately notify the Regional Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
2. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements. All storm water controls, including drainage facilities, shall be maintained so that they function effectively during precipitation events.
3. Methane and other landfill gases shall be adequately vented, removed from the Unit, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, or the impairment of the beneficial uses of surface water or groundwater due

to migration through the unsaturated zone.

4. All wells within 500 feet of the waste management units shall have sanitary seals that meet the requirements of the Placer County Department of Health and Human Services or shall be properly abandoned. A record of the sealing and/or abandonment of such wells shall be sent to the Board and to the State Department of Water Resources.

E. MONITORING SPECIFICATIONS

1. The Discharger shall conduct groundwater and surface water monitoring, as specified in Monitoring and Reporting Program (MRP) No. _____. Groundwater monitoring shall include background monitoring and corrective action monitoring. Background monitoring shall be conducted for the purpose of establishing concentration limits as part of the Water Quality Protection Standard per Section 20400(a) of Title 27. Corrective action monitoring shall be conducted for the purpose of assessing the nature and extent of the release, designing corrective action measures, and for assessing the progress of corrective action (Section 20430(d)).
2. The Discharger shall provide Regional Board staff a minimum of **one-week** notification prior to commencing any field activities related to the installation, non-routine repair, or abandonment of monitoring devices. The Discharger shall also provide Regional Board staff with a sampling schedule at least 48 hours prior to initiation of each detection, evaluation, or corrective-action monitoring event conducted pursuant to MRP No. _____.
_____.
3. The Discharger shall comply with the Water Quality Protection Standard as specified in MRP No. _____ and the Standard Provisions.
4. The concentrations of the constituents of concern in waters passing the Point of Compliance, as defined in Section C.4 of MRP No. _____, shall not exceed concentration limits established in accordance with the MRP.
5. The Discharger shall maintain and implement a Sample Collection and Analysis Plan (31 March 1995 *Article 5 Monitoring Proposal for Colfax Landfill*, prepared by Lawrence & Associates) including the following:
 - a. Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;
 - b. Sample preservation information and shipment procedures;
 - c. Sample analytical methods and procedures;
 - d. Sample quality assurance/quality control (QA/QC) procedures; and
 - e. Chain of Custody control.
6. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

7. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) *Methods for the Analysis of Organics in Water and Wastewater* (USEPA 600 Series), (2) *Test Methods for Evaluating Solid Waste* (SW-846, latest edition), and (3) *Methods for Chemical Analysis of Water and Wastes* (USEPA 600/4-79-020), and in accordance with the approved sampling plan.
8. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use.
9. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., “trace” or “ND”) in data from background monitoring points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
10. **“Trace” results** - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as a number and/or noted as “trace”, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.
11. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.
12. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result**. The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent’s actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
13. **Unknown chromatographic** peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.

14. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

MONITORING DATA ANALYSIS

15. All monitoring data analysis methods shall be consistent with the performance standards specified in Section 20415(e)(9) and sampling standards specified in Section 20415(e)(12).
16. Some of the monitoring data analysis procedures specified in these WDRs (including the MRP) are different than, or are contradictory to, those specified in the Standard Provisions (incorporated under Provision G.2 of this Order). In particular, Monitoring Specification E.18 specifies the interwell tolerance interval data analysis method proposed by the Discharger (31 March 1995 technical report *Article 5 Monitoring Proposal for Colfax Landfill*, prepared by Lawrence & Associates) rather than the hierarchical Analysis of Variance (ANOVA) approach described in the Standard Provisions for exceedance detection and retest. Monitoring Specifications E.18, E.19, and E.20 clarify which specific constituent groups shall be evaluated statistically and which constituent groups shall be evaluated non-statistically. Monitoring Specification E.20 treats VOCs as individual monitoring parameters rather than as a single combined monitoring parameter as set forth in the Standard Provisions. In accordance with General Provision 8 of the Standard Provisions, the data analysis specifications in the WDRs and MRP shall govern over those of the Standard Provisions in such cases where they are inconsistent.
17. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Section 20415(e)(7) of Title 27 that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to Section 20415(e)(7) of Title 27, shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or down gradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing

the number of “ties”.

18. For inorganic monitoring parameters and Constituents of Concern (COCs) for which at least 10% of the data from background samples equal or exceed their respective MDL, the Discharger shall use the Tolerance Interval statistical method for background and corrective action monitoring, or an alternate statistical method approved by the Executive Officer in accordance with Section 20415(e)(8)(E), to establish concentration limits pursuant to Section 20400 of Title 27. The Discharger shall conclude that any analyte that exceeds its concentration limit provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release at that monitoring point. Any COC confirmed by retest as part of a release shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event. The statistical method shall take into account any seasonality in the water quality data.
19. For inorganic monitoring parameters and COCs for which less than 10% of the data from background samples equal or exceed their respective MDL, the Discharger shall use a nonstatistical data analysis method for determining concentration limits and detecting a release. The Discharger shall use the following trigger for these constituents:
 - a. From the constituent of concern or monitoring parameter list, identify each analyte in the current sample that exceeds its MDL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release (existing or new) at that monitoring point, if the data contains an analyte that exceeds its PQL.

Any COC confirmed by retest as part of a release shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event.

20. For VOCs and other organic COCs (i.e. non-naturally occurring COCs) the Discharger shall use a nonstatistical data analysis method for determining concentration limits and detecting a release. The Discharger shall use the following trigger these constituents:
 - a. From the constituent of concern or monitoring parameter list, identify each analyte in the current sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provides measurably significant evidence] of a release (existing or new) at that monitoring point, if either:
 - 1) The data contains two or more analytes that equal or exceed their respective MDLs; or
 - 2) The data contains one analyte that equals or exceeds its PQL.

Any COC confirmed by retest as part of a release shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event.

Discrete Retest

21. If the above statistical or non-statistical trigger procedures used for monitoring data analysis for a given media provide a preliminary indication of a new release or a previously unconfirmed constituent of the existing release at a given monitoring point, the Discharger shall immediately notify Regional Board staff by phone or e-mail and, within 30 days of such indication, shall collect *two* new (retest) samples from the monitoring point where the release is preliminarily indicated.
 - a. For any given retest sample, the Discharger shall include, in the retest analysis, only the laboratory analytical results for those analytes detected in the original sample. As soon as the retest data are available, the Discharger shall apply the same tests [i.e. 18.a for statistical constituents, 19.a or 20.a for non-statistical constituents], to separately analyze each of the two suites of retest data at the monitoring point where the release is preliminarily indicated.
 - b. If either (or both) of the retest samples trips the applicable trigger above (18.a, 19.a or 20.a), then the Discharger shall conclude that there is measurably significant evidence of a release at that monitoring point for the analyte(s) indicated in the validating retest sample(s) and shall:
 - 1) Immediately notify the Regional Board about the constituent verified to be present at the monitoring point, and follow up with written notification submitted by certified mail within seven days of validation; and
 - 2) Comply with 22, below.

Exceedances that the Discharger demonstrates (per Section 20420(k)(7) of Title 27) are the result of sample corruption, laboratory interferences, error, natural variation in the water quality or other cause not associated with a release from the unit shall not trigger notification of a tentative release, and shall not trigger a retest unless a retest is necessary to make the demonstration. Exceedances for any other constituents for which the Discharger fails to conduct a retest will be considered confirmed without retest. Exceedances for constituents that have been previously confirmed as part of the release at a given monitoring point, including regularly detected COCs and COCs that are sporadically detected (e.g. as a result of seasonal or lateral fluctuations in the plume), shall be considered confirmed without notification and retest.

22. If the Discharger determines that there is measurably significant evidence of a new release from the Unit at any monitoring point, the Discharger shall immediately implement the requirements of Response To A Release, contained in the Standard Provisions and Reporting Requirements.
23. The data analysis methods shall also include trend analysis using time series plots and an evaluation of the water chemistry by appropriate methods (e.g., Piper diagram, ion balance, stiff diagram etc) to monitor the effectiveness of corrective action measures in accordance with Section E.3.c of the MRP. The trigger requirement for performing trend analysis shall be at least 4 historical data points above the PQL.

F. REPORTING REQUIREMENTS

1. The Discharger shall comply with the reporting requirements specified in this Order, in Monitoring and Reporting Program Order No. ____ and in the Standard Provisions.
2. The Discharger shall submit construction documents for Phase 3 closure and any future corrective action measures for Board staff approval in accordance with the following schedule:

<u>Item/Activity</u>		
a.	Submit design plans, specifications, CQA plan and schedule for each remaining phase	At least 2 months prior to starting construction
b.	Submit as-built plans, CQA report and certification report:	Within 2 months after completion of each construction

All construction documents referenced above shall be certified by a California registered civil engineer or a certified engineering geologist in accordance with the August 1997 Standard Provisions (Requirements 1, 3 and 4, Supervision and Certification, STANDARD CONDITIONS) and applicable Title 27 sections (e.g. Sections 20323, 20324, and 21090(h)).

3. The Discharger shall immediately notify the Regional Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
4. The Discharger shall notify the Regional Board in writing of any proposed change in ownership or responsibility for construction or operation of the landfill. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Regional Board requesting transfer of the Order within 14 days of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory requirements contained in the Standard Provisions (Reporting Requirement 5) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Regional Board.
5. The discharger shall **mail a copy of each** monitoring **report** and any other reports required by this Order to:

California Regional Water Quality Control Board

Central Valley Region
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670
(or the current address if the office relocates)

G. PROVISIONS

1. The Discharger shall comply with the Monitoring and Reporting Program No. _____, which is attached to and made part of this order. A violation of the MRP is a violation of these waste discharge requirements.
2. The Discharger shall comply with the Standard Provisions and Reporting Requirements (Standard Provisions), dated August 1997, which are incorporated herein and made part of this Order by reference. The Standard Provisions contain important provisions and requirements with which the Discharger must comply. A violation of any of the Standard Provisions is a violation of these waste discharge requirements.
3. The Discharger shall maintain waste containment facilities, the landfill final cover, precipitation and drainage controls, monitoring wells, and shall continue to monitor ground water and surface waters per Monitoring and Reporting Program No. _____ throughout the post-closure maintenance period.
4. The owners of the waste management facility shall have the continuing responsibility to assure protection of usable waters from discharged wastes and from gases and leachate generated by discharged wastes during the closure and post-closure maintenance period of the landfill and during subsequent use of the property for other purposes.
5. If the Discharger or Regional Board determines that the corrective action program is not adequate (i.e. does not satisfy the provisions of Section 20430), the Discharger shall, within 90 days of making the determination, or of receiving written notification from the Regional Board of such determination, submit an amended report of waste discharge (RWD) to make appropriate changes to the program. The amended RWD shall include the following:
 - a. A discussion as to why existing corrective action measures have been ineffective or insufficient.
 - b. A revised evaluation monitoring plan if necessary to further assess the nature and extent of the release
 - c. A discussion of corrective action needs and options.
 - d. Proposed additional corrective action measures, as necessary, for:
 - i. Source control,
 - ii. Adequate separation from groundwater,
 - iii. Groundwater cleanup, and/or
 - iv. Landfill gas control

- e. A plan to monitor the progress of corrective action measures consistent with the MRP
 - f. Cost estimates for implementing additional corrective action, including monitoring
 - g. An implementation schedule.
6. The Discharger shall provide assurances of financial responsibility for initiating and completing corrective action for a known or reasonably foreseeable release from the landfill, in an amount approved by the Executive Officer, by **31 March 2006**. The financial assurance mechanism for this funding shall be provided to the Financial Assurances Section of the California Integrated Waste Management Board.
 7. The Discharger is required to maintain financial assurance mechanisms for closure and post-closure maintenance costs as specified in Chapter 6 of Title 27. The Discharger is required to submit the financial assurance mechanism to the Financial Assurances Section of the California Integrated Waste Management Board, which determines if the mechanism meets the requirements of Chapter 6, Title 27, and if the amount of coverage is adequate.
 8. The Discharger shall update its FCP/Post-Closure Maintenance Plan to reflect current operations and requirements under these WDRs and MRP No. _____. The plan shall include updated cost estimates for remaining closure activities and post-closure maintenance, monitoring and any additional corrective action measures that may be necessary to comply with these WDRs. A copy of the updated plan shall be provided to the Regional Board by **28 February 2006**.
 9. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
 10. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of the Order.

11. The Regional Board will review this Order periodically and will revise these requirements when necessary.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____.

JDM

THOMAS R. PINKOS, Executive Officer